PERMIT TO CONSTRUCT APPLICATION
FIBER COMPOSITES, LLC ▪ MERIDIAN, IDAHO DECKING FACILITY

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December 2007

Project 074801.0046

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1. INTRODUCTION

Fiber Composites, LLC (Fiber Composites) operates a composite decking facility in Meridian, Idaho. The Meridian facility currently operates under Tier II Operating Permit No. 001-00115, issued by IDEQ on July 12, 2002, and submitted for renewal on July 12, 2007. Additionally, the site operates under PTC P-050039.

Fiber Composites proposes a number of projects at the Meridian facility to generally improve control of particulate emissions at the facility. The proposed baghouses will allow for better management of fugitive dust sources at the truck dump, product regrind, finishing line, and production line locations. The projects identified in the report are independent changes that are being permitted under a single application for convenience. This report and its attachments comprise the application.

No owner or operator in the State of Idaho may begin construction or modification of any stationary source without having demonstrated compliance with the Permit to Construct (PTC) provisions in Idaho Administrative Code (IDAPA) 58.01.01.200 through 223. Compliance is demonstrated by obtaining a PTC from the IDEQ.

This submittal represents the PTC application and includes the following information:

- Section 1: Introduction
- Section 2: Description of Proposed Changes
- Section 3: Emissions Summary
- Section 4: Regulatory Applicability
- Section 5: Modeling Methodology
- Section 6: Modeling Results
- Appendix A: Meridian Facility Area Map
- Appendix B: Process Flow Diagrams
- Appendix C: Facility Plot Plan
- Appendix D: Permit to Construct Forms
- Appendix E: Modeling Parameters
- Appendix F: Modeling Files

The Meridian facility is located at approximately 43°N 36'26" latitude, 116°W 23'56" longitude in Meridian, Idaho.[2] **Appendix A** contains an area map consisting of the facility location overlaid onto a detailed map of the area. The area map shows an aerial view of the site property relative to predominant geographical features such as highways, railroads, streams, and rivers.

The Meridian facility currently produces extruded decking manufactured from wood waste and polyethylene plastic. The raw materials for this process are railcars of locally sourced plastic and wood waste produced in and transferred from off-site locations.

Fiber Composites proposes the addition of five sources to allow for improved control of fugitive dust at the Meridian facility. The additional baghouses will collect fugitive dust emissions resulting from truck unloading and fugitive emissions within several buildings at the Meridian facility. Fiber Composites also proposes the addition of wet wood silo and corresponding baghouse for control. Fiber Composites wishes to permit all of the proposed projects for continuous operation (8,760 hours per year).

The proposed projects operate independently and are proposed under one permit to streamline the permitting process. The construction, if approved, of each individual source will be managed separately (some projects may be delayed).

2.1 TRUCK DUMP BAGHOUSE

Fugitive emissions resulting from unloading operations at the truck dump are currently uncontrolled. Fiber Composites proposes the installation of a pulse jet baghouse with a 10,000 acfm capacity. The baghouse will collect fugitive dust resulting from the unloading operations. The truck dump baghouse will be designed with an exit grain loading of 0.01 gr/dscf.

2.2 REGRIND BAGHOUSE

The regrind baghouse (i.e., unit E45A in the Meridian facility Tier II permit) currently exhausts inside the West lumber storage building and has not been included in previous NAAQS modeling. Fiber Composites proposes a modification of the regrind baghouse to reroute the exhaust outside. The pulse jet baghouse has polyester bags and is designed with a 4,200 acfm capacity and an exit grain loading of 0.01 gr/dscf.

2.3 FINISHING LINE BAGHOUSES

Fiber Composites proposes the addition of two finishing line baghouses to assist in the management of fugitive dust inside the production building. Finishing Line Baghouse #5 consists of a pulse jet unit with polyester needle felt bags, which will be designed with a 6,000 acfm capacity and an exit grain loading of

[2] Geographic coordinates projected in North American Datum of 1927 (NAD27).

0.01 gr/dscf. Finishing Line Baghouse #6 will be a pulse jet, polyester bag unit with a 6,048 acfm capacity and an exit grain loading of 0.01 gr/dscf.

2.4 ENTEK DUST COLLECTOR BAGHOUSE

The Entek dust collector baghouse currently exhausts inside the production building. Fiber Composites proposes a modification of the Entek dust collector baghouse to route the exhaust outside. The pulse jet baghouse has a polyester eggshell filter and is designed with a 3,000 acfm capacity and an exit grain loading of 0.01 gr/dscf.

2.5 WET WOOD SILO BIN VENT

The emissions from an existing wet wood silo are currently collected by the Entek dust collector baghouse and vented inside the production building. Fiber Composites proposes the addition of a second wet wood silo immediately to the North of Wet Wood Silo #1 and the construction of a wet wood silo bin vent for control of particulate matter in the exhaust stream. Exhaust from Wet Wood Silo #1 will also be rerouted from the Entek Dust Collector baghouse to the proposed wet wood silo bin vent. The bin vent will consist of a pulse jet polyester filter with a 2,660 acfm capacity and a 0.01 gr/dscf exit grain loading.

Process flow diagrams of the existing facility and proposed projects are included in **Appendix B**. A facility plot plan is presented in **Appendix C**. Completed PTC and operating permit forms for the proposed process and control equipment are included in **Appendix D**.

The following section summarizes estimated potential emissions from the proposed projects. This information is also detailed in **Appendix E**.

Controlled potential emissions from the proposed projects are estimated using the following assumptions:

- PM_{10} is the only pollutant emitted by the proposed equipment. Emissions of volatile organic compounds (VOC) and Toxic Air Pollutants (TAP) are expected to be negligible and are not readily quantifiable.
- The control equipment has the potential to operate 8,760 hours per year.

Table 3-1 illustrates controlled potential emissions for all sources related to the proposed projects. Uncontrolled emission factors are not applicable because the emission rates are calculated using an exit grain loading, and therefore, are not presented.

As stated above, TAP emissions from the proposed and existing equipment are negligible and not readily quantifiable. Therefore, no TAP emissions calculations are performed.

TABLE 3-1. POTENTIAL PM_{10} EMISSIONS FROM PROPOSED PROJECTS

Emission Point	Unit ID	Volumetric Flow[a] (dscfm)	Emission Factor (gr/dscf)	Potential Emissions (lb/hr)	Potential Emissions (tpy)
Truck Dump Fugitive Dust	BHTD	9,200	0.01	0.789	3.45
Regrind Baghouse	E45A	3,864	0.01	0.331	1.45
Finishing Line Baghouse #5	BHMB1	5,700	0.01	0.489	2.14
Finishing Line Baghouse #6	BHFL1	5,746	0.01	0.492	2.16
Entek Dust Collector Baghouse	WFVAC	2,850	0.01	0.244	1.07
Wet Wood Silo Bin Vent	BVWWS	2,447	0.01	0.210	0.92
Total				**2.56**	**11.2**

[a] Volumetric flow in dscfm is calculated from flowrates in acfm, operating temperatures, and exhaust stream moisture contents provided by Bryan Kellar, Fiber Composites, in a May 18, 2007 and November 20, 2007, email to Michael Hedrick and Aaron Day respectively, Trinity Consultants.

Note that the emissions shown in Table 3-1 represent the potential to emit associated with the proposed projects. Because these emissions are the result of baghouse/bin vent additions for fugitive collection or the rerouting of indoor exhausts to the outside, the actual emission increase at the Meridian facility resulting from the proposed modifications and additions is likely much lower.

The following sections examine the regulatory requirements for the existing facility.

4.1 NEW SOURCE REVIEW

4.1.1 PREVENTION OF SIGNIFICANT DETERIORATION (MAJOR NEW SOURCE REVIEW)

An emission source located in an attainment or non-classifiable area is subject to the PSD permitting program under IDAPA 58.01.01.205 if the new installation is either a major modification to an existing major facility, or is a major facility unto itself. Meridian, Idaho, is located in Northern Ada County, which is classified as an attainment area for PM_{10}.[3] The Meridian facility is not an existing PSD major source. The Meridian facility will be subject to PSD review only if the emissions from the facility constitute a major facility.

The Meridian facility (i.e., a composite decking extrusion mill) is not a designated facility [i.e., it is not on the list of 26 designated facilities in IDAPA 58.01.01.008(10)(c)(i)] under the PSD program. A major facility, according to IDAPA 58.01.01.008(10)(c), is any facility which emits, or has the potential to emit, 100 tpy or more of any regulated air pollutant. Since the Meridian facility is not a designated facility, fugitive emissions are not counted toward the major facility threshold.

IDAPA 58.01.01.006.74 defines potential to emit as the maximum capacity of a facility to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility to emit an air pollutant, including air pollution control equipment and restriction on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

As shown in Table 3-1, the controlled potential to emit from the proposed projects is less than the major facility threshold of 100 tpy for all regulated air pollutants. Therefore, the Meridian facility is not subject to PSD review and is not required to submit a detailed existing facility emissions inventory as part of this application.

4.1.2 PERMIT TO CONSTRUCT APPLICABILITY AND REQUIREMENTS – IDAPA 58.01.01.201

A PTC is required prior to constructing or modifying any stationary source, facility, major facility, or major modification pursuant to IDAPA 58.01.01.201, unless exempted under IDAPA 58.01.01.220 through 223. Fiber Composites is not claiming any exemptions for the proposed equipment, and is therefore submitting this PTC application containing necessary

[3] Northern Ada County was designated as a non-attainment area for PM_{10} prior to March 12, 1999, per IDAPA 58.01.01.582.01(d).

information and forms required to comply with permit to construct regulations identified in IDAPA 58.01.01.200.

4.2 New Source Performance Standards – 40 CFR 60 and IDAPA 58.01.01.590

The proposed projects do not involve equipment that meets the definition of an affected facility under any subpart of the NSPS.[4]

4.3 National Emissions Standards for Hazardous Air Pollutants - 40 CFR 63 and IDAPA 58.01.01.591

National Emissions Standards for Hazardous Air Pollutants (NESHAP) have been established in 40 CFR 61 and 63 to control the emissions of hazardous air pollutants (HAP). NESHAP regulations establish Maximum Achievable Control Technology (MACT) standards for specific types of equipment at qualifying facilities. The proposed equipment does not fall within a source category regulated by an area source MACT standard. Additionally, the Meridian facility is not a major facility for HAP as defined in IDAPA 58.01.01.008(10)(a). Therefore, the proposed projects are not subject to any MACT requirements.

4.4 Title V Air Operating Permit Program

The Idaho Title V Operating Permit program (referred to as the Tier I operating permit program) is codified in IDAPA 58.01.01.300. A Tier I operating permit may be required for a facility that meets the definition of a major facility in IDAPA 58.01.01.008(10).

The definition identifies a major facility as any facility that emits or has the potential to emit 100 tpy of any criteria pollutant, 10 tpy or more of any single HAP, or 25 tpy or more of total HAP. Since HAP emissions from the proposed and existing equipment are negligible and not readily quantifiable, no HAP emission calculations are performed. Potential emissions of criteria pollutants from the Meridian facility are less than the threshold of 100 tpy, and will remain below this threshold after the installation of the proposed projects. Therefore, a Tier I operating permit is not required for the Meridian facility.

4.5 Other Idaho Rules – IDAPA 58.01.01

The following sections of the *Rules for the Control of Air Pollution in Idaho* are applicable to the Meridian facility.

4.5.1 Section 210: Toxic Air Pollutant Requirements

There are negligible toxic emissions from the proposed equipment at the Meridian facility. Therefore, no assessment of Toxic Air Pollutant Reasonably Available Control Technology (T-RACT) or ambient air concentrations is necessary.

[4] i.e., 40 CFR 60

4.5.2 SECTION 625: VISIBLE EMISSIONS

IDAPA 58.01.01.625 prohibits the discharge of opacity greater than 20 percent (%) into the atmosphere from any emission unit for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period. The Meridian facility will comply with this standard by operating and maintaining the control and process equipment covered by this application in accordance with an operation and maintenance plan (O&M plan). In addition, since Fiber Composites has elected to not model fugitive emissions and be regulated by the visible emissions requirement, the Meridian facility will not allow fugitive emissions to be observed leaving the property boundary for a period of more than three (3) minutes in any hour.

4.5.3 SECTION 700-701: PARTICULATE MATTER – PROCESS WEIGHT LIMITATIONS

IDAPA 58.01.01.700 establishes particulate matter emission limitations based on process weight. The proposed, non-fuel burning, equipment is subject to emission standards in IDAPA 58.01.01.701. The maximum potential emission rates of all of the proposed units in Table 3-1 are below 1 pound per hour, which ensures compliance with the process weight limitations pursuant to IDAPA 58.01.01.700.02.

5.1 MODELING APPROACH OVERVIEW

The Meridian facility is located in Meridian, Idaho, in UTM Zone 11, near UTM NAD 27 coordinates 548,518 Easting and 4,828,204 Northing. An ambient air quality model has been created to estimate PM_{10} emissions from the permitted sources and the proposed projects at the Meridian facility. The current analysis builds on previous NAAQS modeling of the Meridian facility, but has been conducted using the AERMOD dispersion model (i.e., previous modeling was conducted using ISCST3). Emission sources from the nearby Plum Creek facility in Meridian, Idaho, are included in the modeling analysis per the request of the IDEQ.[5]

The AERMOD dispersion model, BREEZE version 5.2.1 (regulatory version 07026), with the Plume Rise Model Enhancements (PRIME) advanced downwash algorithms is used to model impacts of PM_{10} emissions. AERMOD is now the approved United States Environmental Protection Agency (U.S. EPA) dispersion model as of December 9, 2006.[6]

5.2 METEOROLOGICAL DATA

Site-specific dispersion models require a sequential hourly record of meteorology that is representative of the region within which the source is located. In the absence of site-specific measurements, the U.S. EPA guidelines recommend the use of readily available data from the closest and most representative National Weather Service (NWS) stations.

AERMOD uses planetary boundary layer (PBL) turbulence calculations to characterize the stability of the atmosphere, which is affected by the prevailing meteorological conditions and the land use and cover of the surrounding area. Because site-specific parameters are used in the meteorological data files, U.S. EPA recommended in the September 27, 2005 *AERMOD Implementation Guide*:[7]

> *...If you are using AERMET to prepare the meteorological data for AERMOD, you must input three surface characteristics, the surface roughness, the Albedo, and the Bowen ratio. When using NWS data for AERMOD, data representativeness can be thought of in terms of constructing realistic PBL similarity profiles. As such, the determination of representativeness will depend on a comparison of the surface characteristics between the NWS site and the source location...If the nearest NWS meteorological site's surface characteristics are determined to NOT be representative of the application, it may be possible that another nearby NWS site may be representative of both weather parameters and surface characteristics...*

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[5] Per a June 26, 2007, conference with Mr. Bryan Kellar, Fiber Composites; Mr. Bill Rogers, IDEQ; Mr. Kevin Schilling, IDEQ, Mr. Jonathan Pettit, IDEQ; Mr. Aaron Day, Trinity Consultants; and Mr. Michael Hedrick, Trinity Consultants.

[6] http://dnr.wi.gov/org/aw/air/modeling/PDF/AERMOD_Transition_2005_final.pdf.

[7] http://www.epa.gov/scram001/7thconf/aermod/AERMOD_Implementation_Guide_final_09_27_05.pdf.

AERMOD requires surface and upper-air data from representative stations. Surface and upper air meteorological data for this analysis are taken from the Boise Airport (BOI) for years 2002 through 2006. The 2002 through 2006 meteorological data set is processed with the proposed land-use analysis (originally proposed in the August 9, 2007, modeling protocol and discussed in Section 5.3 of this report) using the AERMET meteorological processor. Default AERMET options and built-in AERMET quality assurance and data substitution options are employed. AERMET generates two files for use in AERMOD. One file consists of surface scalar parameters while the other consists of vertical profiles of meteorological data, to account for both surface and upper air effects on the dispersion of pollutants.

5.3 LAND-USE

According to the Guideline on Air Quality Models, and as a component of the AERMET meteorological data processor, a land-use/land-cover (LULC) analysis is required.[8] The LULC analysis determines the seasonal albedo, daytime Bowen ratio, and surface roughness that are used in AERMET. The LULC methodology that is used in the analysis is presented in the subsequent paragraphs.

The LULC analysis is conducted using the Auer land-use determination method.[9] This method involves centering a circle with a 3 km radius on the meteorological site at the Boise Airport (BOI). The 3 km radius circle is divided into 12 sectors (30 degrees each) separating the various land-use types around the site. Land-use within each of the sectors is divided into categories based on the following land-use options: 1) urban, 2) grassland, 3) deciduous forest, 4) coniferous forest, 5) desert shrubland, 6) water (fresh or sea), 7) swamp, and 8) cultivated land. Each of the land-use categories within each sector is assigned a weighted distribution based on the arithmetic average of the specific category of land-use in the sector.

Micromet look-up tables from the U.S. EPA's Office of Air Quality Planning and Standards (OAQPS) are used to determine the seasonal albedo, daytime Bowen ratio, and surface roughness for each land-use category in each sector. The average albedo, daytime Bowen ratio, and surface roughness for each sector are determined based on both the seasonal values for each category of land-use and the weighted distribution of each of the land-use categories within a sector. Average Bowen ratios are used for land-use characteristics.[10]

Figure 5-1 shows the Auer land-use surrounding the Boise Airport station meteorological site. The land-use analysis that is used to process the meteorological data for the dispersion modeling analysis of the Meridian facility is provided in Table 5-1 through Table 5-3.

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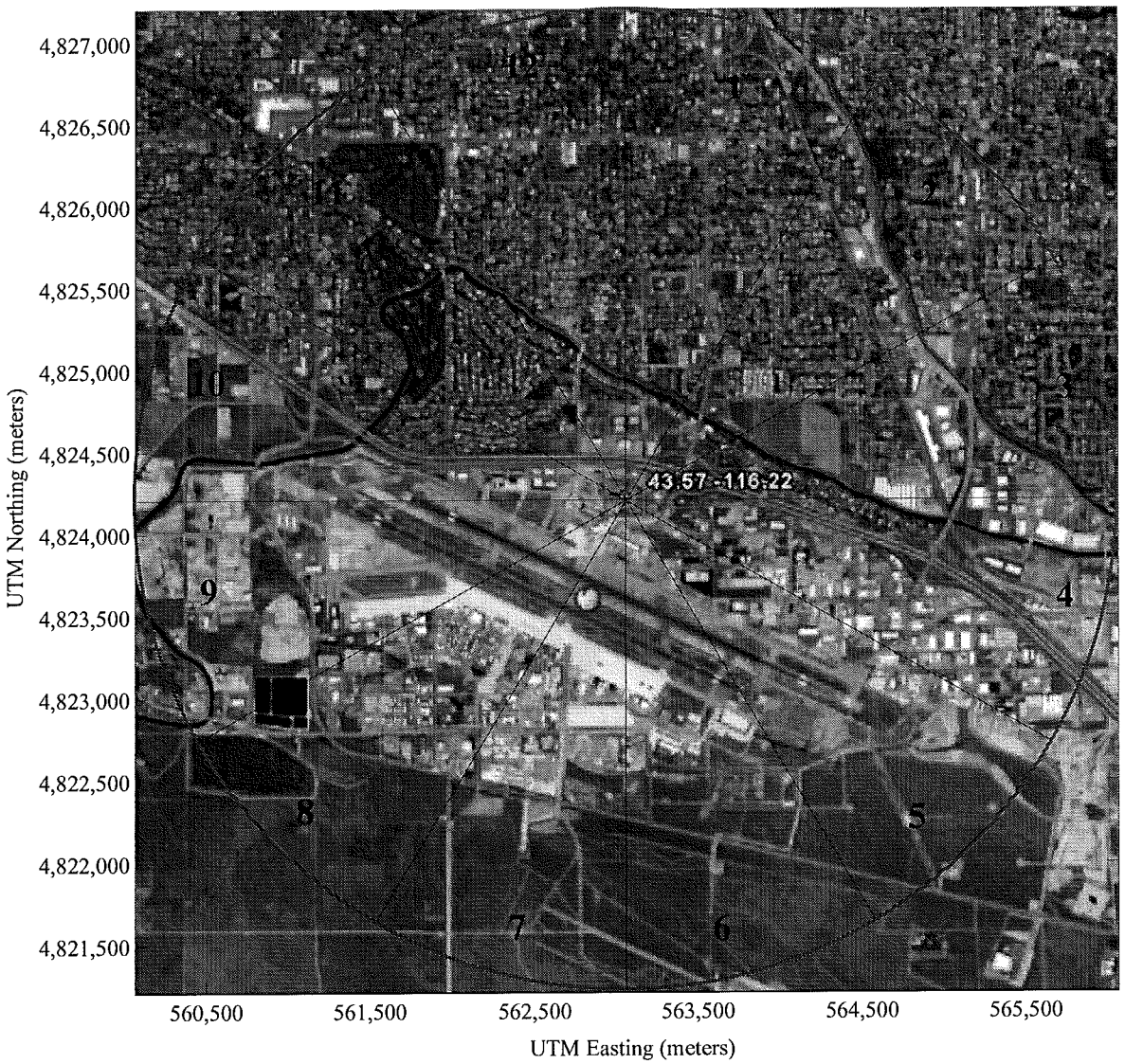
[8] Section 8.2.8 of EPA's *Guideline on Air Quality Models*, 2001.

[9] Auer, A.H. Jr. (1978): Correlation of land-use and cover with meteorological anomalies. *Journal of Applied Meteorology*, 17, 636-643.

[10] Ibid.

FIGURE 5-1. LAND-USE ANALYSIS SURROUNDING THE BOISE AIRPORT [a]



[a] Projected in NAD 27, Zone 11.

TABLE 5-1. SURFACE CHARACTERISTICS BY LAND-USE AND SEASON

Land Use	Season	Albedo	Bowen Ratio	Surface Roughness (m)
Urban (Commercial)	Spring	0.14	1.0	1.00
	Summer	0.16	2.0	1.00
	Autumn	0.18	2.0	1.00
	Winter	0.35	1.5	1.00
Urban (Residential) [a]	Spring	0.14	1.0	0.50
	Summer	0.16	2.0	0.50
	Autumn	0.18	2.0	0.50
	Winter	0.35	1.5	0.50
Cultivated Land	Spring	0.14	0.3	0.03
	Summer	0.20	0.5	0.20
	Autumn	0.18	0.7	0.05
	Winter	0.60	1.5	0.01

[a] The urban (residential) surface roughness value is 0.5 meters (the average of the surface roughness lengths for the environments of 'outskirts of towns' and 'center of small towns'), according to Table F-2 in U.S. EPA's User's Guide for the AERMOD Meteorological Preprocessor (AERMET), U.S. EPA-454/B-03-002.

TABLE 5-2. LAND USE TYPES PRESENT IN EACH SECTOR

Sector	Land-use Category		
	Cultivated Land	Urban (Commercial)	Urban (Residential)
Sector 1 (0-30 degrees)	0%	10%	90%
Sector 2 (30-60 degrees)	10%	10%	80%
Sector 3 (60-90 degrees)	10%	30%	60%
Sector 4 (90-120 degrees)	0%	90%	10%
Sector 5 (120-150 degrees)	70%	30%	0%
Sector 6 (150-180 degrees)	80%	20%	0%
Sector 7 (180-210 degrees)	60%	40%	0%
Sector 8 (210-240 degrees)	50%	50%	0%
Sector 9 (240-270 degrees)	30%	60%	10%
Sector 10 (270-300 degrees)	50%	20%	30%
Sector 11 (300-330 degrees)	0%	0%	100%
Sector 12 (330-360 degrees)	0%	10%	90%

TABLE 5-3. LAND USE BY SECTOR

Sector	Season	Albedo	Bowen Ratio	Surface Roughness Length
1	Winter	0.350	1.50	0.550
	Spring	0.140	1.00	0.550
	Summer	0.160	2.00	0.550
	Autumn	0.180	2.00	0.550
2	Winter	0.375	1.50	0.501
	Spring	0.140	0.93	0.503
	Summer	0.164	1.85	0.520
	Autumn	0.180	1.87	0.505
3	Winter	0.375	1.50	0.601
	Spring	0.140	0.93	0.603
	Summer	0.164	1.85	0.620
	Autumn	0.180	1.87	0.605
4	Winter	0.350	1.50	0.950
	Spring	0.140	1.00	0.950
	Summer	0.160	2.00	0.950
	Autumn	0.180	2.00	0.950
5	Winter	0.525	1.50	0.307
	Spring	0.140	0.51	0.321
	Summer	0.188	0.95	0.440
	Autumn	0.180	1.09	0.335
6	Winter	0.550	1.50	0.208
	Spring	0.140	0.44	0.224
	Summer	0.192	0.80	0.360
	Autumn	0.180	0.96	0.240
7	Winter	0.500	1.50	0.406
	Spring	0.140	0.58	0.418
	Summer	0.184	1.10	0.520
	Autumn	0.180	1.22	0.430
8	Winter	0.475	1.50	0.505
	Spring	0.140	0.65	0.515
	Summer	0.180	1.25	0.600
	Autumn	0.180	1.35	0.525

TABLE 5-3. LAND USE BY SECTOR (CONT.)

Sector	Season	Albedo	Bowen Ratio	Surface Roughness Length
9	Winter	0.425	1.50	0.653
	Spring	0.140	0.79	0.659
	Summer	0.172	1.55	0.710
	Autumn	0.180	1.61	0.665
10	Winter	0.475	1.50	0.355
	Spring	0.140	0.65	0.365
	Summer	0.180	1.25	0.450
	Autumn	0.180	1.35	0.375
11	Winter	0.350	1.50	0.500
	Spring	0.140	1.00	0.500
	Summer	0.160	2.00	0.500
	Autumn	0.180	2.00	0.500
12	Winter	0.350	1.50	0.550
	Spring	0.140	1.00	0.550
	Summer	0.160	2.00	0.550
	Autumn	0.180	2.00	0.550

5.4 TERRAIN ELEVATIONS

Terrain elevations for receptors, buildings, and sources are taken from digital elevation models (DEMs) supplied by the United States Geologic Survey (USGS).[11] DEMs provide elevations based on 30 meter (m) grid spacing. Elevations are converted from the DEM grid spacing to the air dispersion model spacing by interpolating from the four DEM elevation values closest to the modeling object point. These data are interpolated using Trinity's *BREEZE AERMOD SUITE* software. All data obtained from the DEM files are checked for completeness and spot-checked for accuracy.

5.5 RECEPTOR GRIDS

The modeling analysis assesses PM_{10} impacts on human health. The receptor domain for determining PM_{10} impacts to human health consists of three square Cartesian receptor grids as well as receptors placed on the facility's property line. The property line boundary consists of discrete receptors placed at 25-meter intervals. The fine grid contains 50-meter spaced receptors extending 1 kilometer from the center of the facility. The medium grid contains 100-meter spaced receptors extending 3 kilometers from the center of the facility. The coarse grid contains 500-meter spaced receptors extending 5 kilometers from the center of the facility.

11 Obtained at http://edc.usgs.gov/geodata.

5.6 BUILDING DOWNWASH

The emissions units at the facility are evaluated in terms of their proximity to nearby structures. The purpose of this evaluation is to determine if stack discharges might become caught in the turbulent wakes of these structures. Wind blowing around a building creates zones of turbulence that are greater than if the buildings were absent. Direction-specific building dimensions and the dominant downwash structure parameters used as input to the dispersion models are determined using Trinity Consultants' *BREEZE-WAKE/BPIP* software. This software incorporates the algorithms of the U.S. EPA-sanctioned Building Profile Input Program with PRIME enhancement (BPIP-PRIME), version 04274. BPIP is designed to incorporate the concepts and procedures expressed in the GEP Technical Support document, the Building Downwash Guidance document, and other related documents. A summary of the buildings included in the downwash analysis is shown in Table 5-4.

TABLE 5-4. SUMMARY OF BUILDINGS INCLUDED IN DOWNWASH ANALYSIS [a]

Building ID	Building Name	Height (ft)
A	Strandex Production Storage Addition	25.7
B	Finished Product Storage	18.0
C	Finished Product Storage	18.0
D	Prime Line	21.4
E	Lumber Storage	22.8
F	N/A	11.2
G	N/A	8.6
H	Lumber Storage	24.1
I	Grinding Station	31.0
J	Lift Truck Station	13.6
K	Wet Wood Silo	36.0
L	Wet Wood Silo	36.0
M (west)	Lumber Storage	33.6
M (east)	Lumber Storage	23.8
O	Production	29.4
P	Lumber Storage	23.0
Q	Lumber Storage	22.1
R	Fire Protection Shed	9.4
S	Guard House	11.2
T	Office	14.5
U	Walking Floor Structure	24.8
Laidig	Laidig Silo	108
HDPE#1	HDPE Silo #1	48
HDPE#2	HDPE Silo #2	48
WetWood2	Wet Wood Silo #2	58
WetWood1	Wet Wood Silo #1	58
DryerAdd	Dryer Addition – Bldg O	30
PumpAdd	Pump Addition – Bldg O	15
DryWood1	Dry Wood Storage Bin #1	16
DryWood2	Dry Wood Storage Bin #2	16
BLD1 [b]	Building 1	20
BLD2 [b]	Building 2	20
BLD3 [b]	Building 3	20
BLD4 [b]	Building 4	20
BLD5 [b]	Edge Glue Truck Bin	44.8
BLD7 [b]	Cut Plant Truck Bin	44.8

[a] Based on the plot plan provided in Appendix C
[b] Building parameters obtained from Plum Creek Meridian facility Permit to Construct and Tier II Permit Modification Application submitted in April, 2006

5.7 MODELED EMISSION SOURCES

All of the emission sources at the Meridian facility (both permitted and associated with the proposed projects) have stacks, and are thus represented as vertical point sources in the AERMOD-PRIME modeling analysis. The neighboring Plum Creek Meridian facility sources include two vertical point sources, two horizontal point sources, and one volume source.

As discussed in the IDEQ *Air Quality Modeling Guideline,*[12] the stack exit velocities for the horizontal point sources at the Plum Creek facility are set to 0.001 m/s to negate upward momentum due to the orientation of the stacks. Actual values for stack height, stack diameter, stack exit velocity, and stack temperature are used for all other source parameters in the modeling analysis. These values are determined either using physical measurements or the design capacities of fans and blowers.

The stack parameters and emission rate calculations used in the modeling analysis are presented in **Appendix E**.

[12] Section 5.4.2 of IDEQ's *Air Quality Modeling Guideline*, December 31, 2002.

In order to meet the requirements of a PTC application, the entire Meridian facility (both existing emission sources and those sources associated with the proposed projects) is modeled, and the resulting PM_{10} ambient impacts compared with the NAAQS. For the annual averaging period, the highest ambient impact concentration is used for comparison, while the ambient impact for the 24-hour averaging period is determined using the receptor with the maximum second high concentration from each year.[13]

For screening purposes, ambient background PM_{10} concentrations (24 hour = 90 $\mu g/m^3$, annual = 25.1 $\mu g/m^3$) are added to the modeled results for comparison to the NAAQS. As discussed with IDEQ during the June 27, 2007 pre-application meeting, the 24-hour background concentration of 90 $\mu g/m^3$ is based on a winter stagnation condition. The use of this background concentration may not be appropriate when considering the wind speed associated with those modeled impacts. According to Kevin Schilling of IDEQ, a lower background concentration of 81 $\mu g/m^3$ would be appropriate for impacts occurring during a different meteorological scenario.[14] However, for conservatism, the higher background concentration is used in this compliance demonstration. Additionally, with the inclusion of the nearby Plum Creek sources in the modeling analysis, some double-counting of the effects of Plum Creek sources (included in both the analysis and the background) is expected. Therefore, it should be noted that the total impact presented in this report likely over-predicts actual ambient concentrations.

All of the PM_{10} sources at Fiber Composite's Meridian facility are associated with material handling equipment rather than fuel combustion equipment. According to standard EPA methodology, the particle size distribution for aggregate material handling assumes that approximately 15% of PM_{10} emissions are in the form of $PM_{2.5}$.[15] Based on the type of particulate sources installed at the Meridian facility, it is anticipated that the particle size distribution of this material is similar to that assumed by EPA for aggregate material handling. Accordingly, PM_{10} impacts from the Meridian facility are not expected to result in significant $PM_{2.5}$ impacts.

The results of the modeling are summarized in Table 6-1. A copy of the dispersion model input and output files are included on a CD-ROM in **Appendix F**.

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[13] The annual modeled impact is the highest first-high value while the 24-hour modeled impact is the highest second-high value for each year per IDAPA 58.01.01.577.01(a).

[14] During a December 12, 2007 call with Maren Seibold, Trinity Consultants, Kevin Schilling, IDEQ, estimated that the wind speed associated with the winter stagnation background concentration is approximately 1 meter per second. The wind speed associated with the maximum second high modeled 24-hour PM_{10} impact for the Meridian facility is approximately 4 meters per second, which is significantly greater than the wind speed associated with the winter stagnation background concentration.

[15] U.S. EPA, "Compilation of Air Pollutant Emission Factors" (AP-42), Section 13.2.4 (Aggregate Handling and Storage Piles), November 2006.

TABLE 6-1. PM_{10} DISPERSION MODELING RESULTS FOR THE MERIDIAN FACILITY [a]

Year	Annual Average ($\mu g/m^3$)	24-Hour Average[b] ($\mu g/m^3$)
2002	21.1	53.4
2003	22.8	55.3
2004	21.5	**59.1**
2005	23.0	52.3
2006	**23.5**	57.9
Maximum Concentration	23.5	59.1
Background Concentration [b]	25.1	90
Total Concentration	**48.6**	**149.1**
NAAQS [c]	50	150
Exceeds NAAQS Threshold?	**No**	**No**

[a] The modeling analysis includes both permitted sources at the Meridian facility as well as the sources from the proposed projects and sources from the Plum Creek facility.

[b] Second high results are presented for comparison to NAAQS per IDAPA IDAPA 58.01.01 577.01(a)(ii).

[c] The background concentrations were provided in September 22, 2003 electronic correspondence from Mary Anderson, IDEQ, to Kristine Lawrie, Trinity Consultants. The 24-hour background concentration represents a winter stagnation condition, which may not be appropriate when considering the wind speed associated with those modeled impacts. However, for conservatism, this background concentration is used.

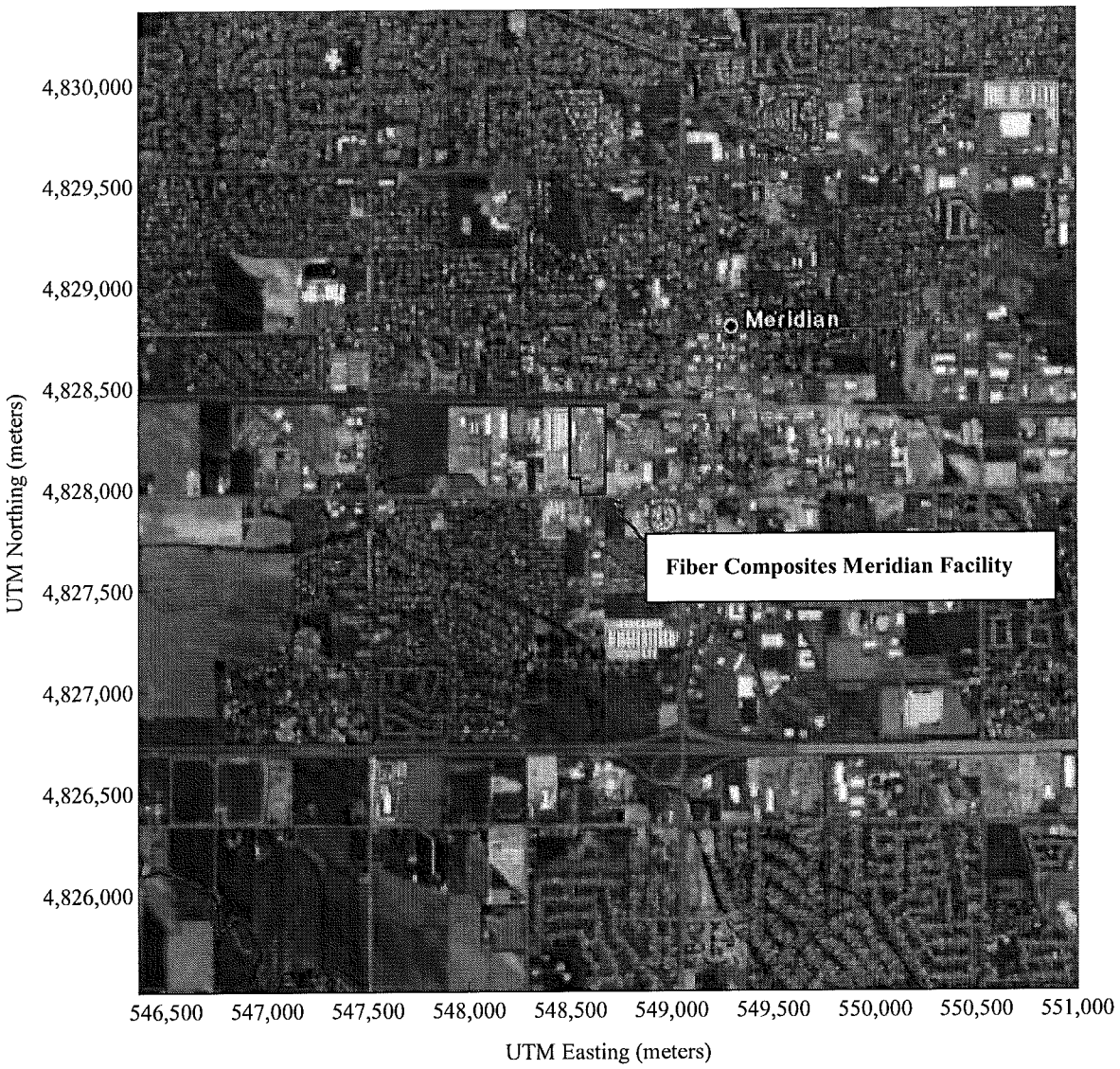
The modeling results demonstrate that the PM_{10} ambient impact from the entire Meridian facility, including the proposed projects, will not exceed the primary PM_{10} NAAQS levels of 50 $\mu g/m^3$ (annual) and 150 $\mu g/m^3$ (24-hour) and, therefore, is judged to not cause or significantly contribute to a violation of an air quality standard, as required by IDAPA Section 203.02. Additional modeling analyses will not be required for the Meridian facility PTC application.

As stated in section 3, HAP emissions from the proposed and existing equipment are negligible and not readily quantifiable. Therefore, no modeling analysis of HAP emissions is performed.

APPENDIX A

MERIDIAN FACILITY AREA MAP

FIGURE A-1. FIBER COMPOSITES, LLC MERIDIAN AREA MAP [a]

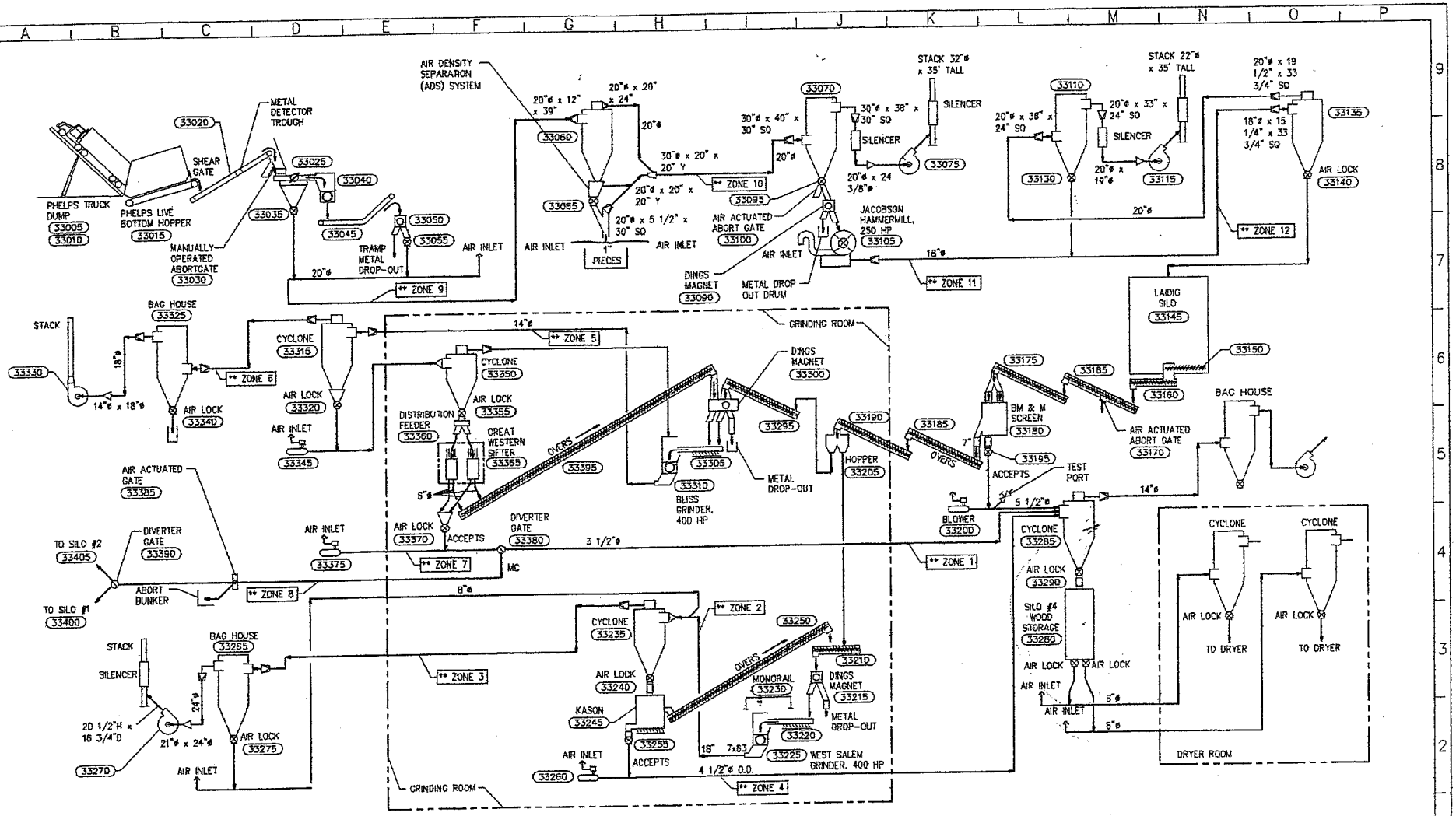


[a] Projected in NAD 27, Zone 11.

APPENDIX B

PROCESS FLOW DIAGRAM – EXISTING FACILITY

PROCESS FLOW DIAGRAM – POST-PROJECT



NOTES:
1. SEE DWG. 5091-10000-G03 FOR EXISTING EQUIPMENT LIST.
2. ** - INDICATES GRECON ZONES IN PNEUMATIC LINES.

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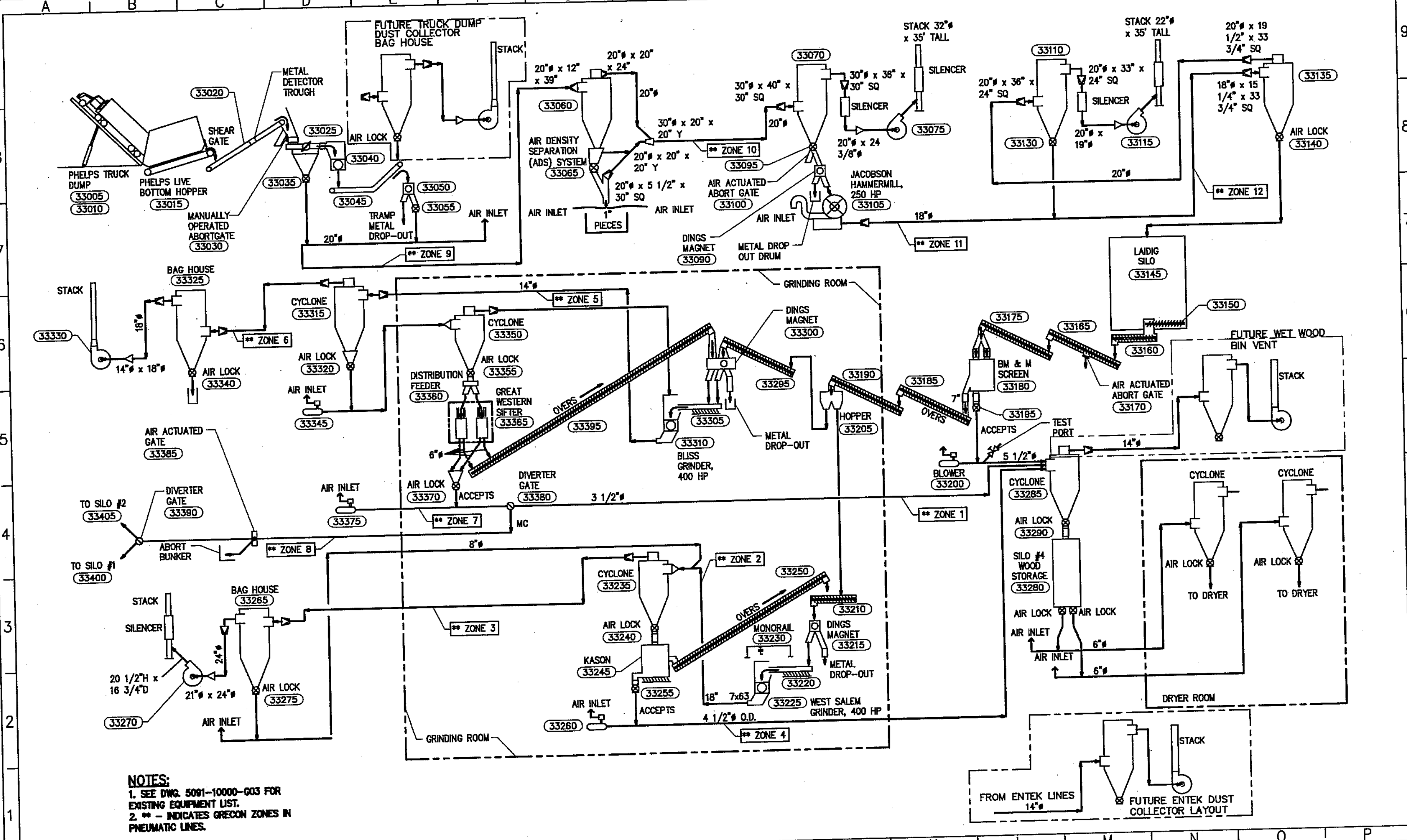

NOTES:
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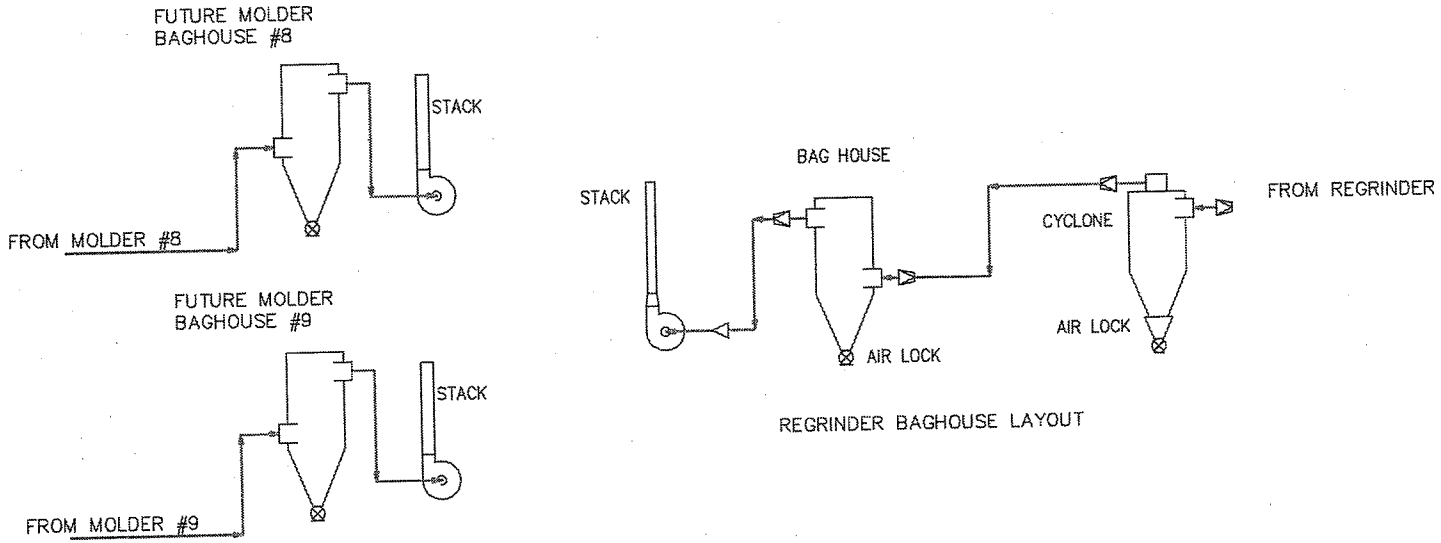

REGRINDER BAGHOUSE LAYOUT